

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI • EXAMINATION – WINTER 2013****Subject Code: 161405****Date: 04-12-2013****Subject Name: Milk and Milk Products Technology****Time: 02:30 pm to 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Answer the followings: **06**  
     i) What are the advantages of centrifugal method cream separation over gravitational method?  
     ii) Define: Homogenized milk, Recombined milk  
     iii) What are the merits of reconstituted and flavoured milk?
- (b) Describe the flow sheet for preparation of sterilized milk. **04**  
 (c) Discuss various phases of Operation Flood. **04**
- Q.2** (a) Define butter. Discuss the PFA specifications and classification of butter. **07**  
 (b) Give composition of cow's milk and discuss various factors affecting it. **07**
- OR**
- (b) Discuss the various physico-chemical properties of milk. **07**
- Q.3** (a) Explain the flow diagram for manufacturing of sweetened condensed milk. **07**  
 (b) Explain manufacturing of skim milk powder using spray drier with all technical details from raw full cream milk. **07**
- OR**
- Q.3** (a) Explain the flow diagram for manufacturing of Cheddar cheese. **07**  
 (b) Give the composition of Paneer. What is the effect of coagulation temperature on quality, yield and solids recovery of Paneer? **07**
- Q.4** (a) What is neutralization of cream? Explain the process of neutralization of cream during preparation of butter. **07**  
 (b) Discuss in detail the freezing step in ice-cream preparation. **07**
- OR**
- Q.4** (a) Describe the common defects in butter with their causes and prevention. **07**  
 (b) Explain homogenization and cooling- ageing steps in ice-cream preparation. **07**
- Q.5** (a) Write short notes on: (1) Standardized milk (2) Flavours in ice-cream **07**  
 (b) Comments on 'Role and objectives of National Dairy Development Board in dairy development in India'. **07**
- OR**
- Q.5** (a) Write short notes on: (1) Toned milk (2) Overrun in ice-cream **07**  
 (b) Calculate the quantity of whole milk and skim milk with 6.5% and 0.5% fat respectively, required to prepare 10,000 liter of Standardized milk. Make necessary assumptions. **03**  
 (c) Standardize 1000 kg milk with 5.5% fat and 2.6% casein so that C/F ratio is 0.68 using skim milk with 2.8% casein. Neglect the fat content in skim milk. **04**

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